MULTI-LIGHT SOURCE, MULTI-SECTION OPTIC FIBER CHRISTMAS TREE

BACKGROUND OF THE INVENTION

1. Field of the Invention:

This invention relates to the multi light source, multi-section optic fiber Christmas tree, in particular each section of optic fiber Christmas tree is directly supplied with lighting source to ensure even illumination, color and brightness. The branchless structure simplifies the assembly process and gain high safety.

2. Description of the Related Art:

The prior art of optic fiber Christmas tree available in the market is only composed of a single light source with single section or a single light source with multi sections.

As shown in Fig. 1, the optic fiber Christmas tree 10' comprises a color tray 12' on which a plurality of optic fiber sections 11' are mounted. While the motor 14' is driving the color tray 12' to rotate and the halogen bulb 13' will provide the color light change for the optic fiber sections 11'. The halogen 13' is energy consuming element, in long time operation, it create high temperature which likely leads to the risk of fire. The motor 14' is a source of noised. These are major weak points the single light source Christmas tree 10' cherishes.

As shown in fig. 2, there is a single light source and multi-section optic fiber Christmas tree 20' in which the light source is same as the single light source as employed in the Christmas tree as shown in Fig. 1. It consists of a color tray 22' and a plurality of optic fiber trunks 21' mounted on the color tray 22'. The motor 24' rotates the color tray 22' and the halogen tree 23' provides light to optic fiber trunks 21'. The trunk 21' has a branch a main knot 211' and each branch section has a sub-knot 212' to form a great diversity. The more sub-knots 212' and main knot 211' in existence, poorer lighting and more falling off of the branch are inevitable.

For the single light source optic fiber Christmas tree 10', the optic fiber section 11' is separable, easy for packing and storage. However, the high temperature created by the halogen tree is an inherent weakness.

Comparison of Advantages and disadvantages for two same height of single light source optic fiber Christmas Trees.

Structural Comparison		**Single Light Source, single Section Optic fiber Christmas Tree**	**Single Light Source, Multi Section Optic fiber Christmas Tree**
1	Structural simplicity	Most simple	Rather complicated
2	Complicated production	Most complicated	Simplified 40%
3	Automatic equipment	Less 10%	Less than 10%
4	Even lighting	Best	Poor for multi-section
5	Diversity	No diversity	Diverse
6	Light source and color change	Color tray, halogen tree and motor are employed.	
7	Safety and stability	Low	Low
8	Packing and storage	None	Volume reduced 50%.
9	Production cost	Low	High

SUMMARY OF THE INVENTION

Due to the predominant weaknesses of the prior art of the single light source optic fiber Christmas tree, the inventor has been working hard on the improvement to optimize the light source and simplify the structure and finally come up with the multi-light source, multi section optic fiber Christmas tree as provided herein.

The main object of the invention is to provide a multi-light source, multi-section optic fiber Christmas tree in which each optic fiber section will be supplied with sufficient light and each optic fiber branch will obtain even lighting. The light comes from LED and the color change is controlled by the electronic device which without generation of high temperature to ensure operational safety.

Another object of this invention is provide the multi-light source, multi-section optic fiber Christmas tree for easy packing, storage, assembly and disassembly in least packing material.

BRIEF DESCRIPTION OF DRAWINGS

Fig. 1 shows the single light source, single section optic fiber Christmas tree.

Fig. 2 shows the single light source, multi section optic fiber Christmas tree.

Fig. 3 shows the structural diagram of the multi light source, multi section optic fiber Christmas tree of this invention.

Fig. 4 shows the top view of the multi light source, multi section optic fiber

Christmas tree of this invention.

Fig. 5 shows the sub-section of optic fiber section of the multi light source, multi section optic fiber Christmas tree of this invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The multi-light source, multi section optic fiber Christmas tree of this invention will be explained in great detail with the aid of embodiments as illustrated in the drawing attached.

As shown in Figs. 3 and 4, the multi light source, multi section optic fiber Christmas tree **1** mainly comprises a base plate **11**, a color control **12**, an optic fiber trunk **13**, a plurality of lighting elements **14** and a plurality control line **122**, where the color control **12** is contained in the base plate **11**. The electronic control circuit is operated to control the color change of the lighting elements **14**. The color control **12** has the power line **121** and control lines **122** to supply the power to the optic fiber trunk **13**. The lighting elements **14** mounted in the trunk **13** is high LED linked with a plurality of optic fiber branches **15** which will be supplied with sufficient lighting.

Please refer to figs. 3 and 5, the optic fiber section **13** is further divided into a sub-section **13'** linked with power line **121'** and control line **122'** and respective socket **131'** and plug **132'** to for signal control and power supply.

Comparison of this invention with the prior art.

Structural Comparison		Single Light Source, single Section Optic fiber Christmas Tree	Single Light Source, Multi Section Optic fiber Christmas Tree	Multi Light Source, Multi section Optic Fiber Christmas Tree
1	Structural simplicity	Most simple	Comparatively complicated	Rather complicated
2	Complicated production	Most complicated	Simplified 40%	Simplified 60%
3	Automatic equipment	Less 10%	Simplified 40%	Simplified 80%
4	Even lighting	Best	Poor for multi-section	Even and sufficient for multi-section
5	Diversity	No diversity		Diverse
6	Light source and color change	Color tray, halogen tree and motor are employed.		Bright LED
7	Safety and stability	Low	Low	High
8	Packing and storage	None	Volume reduced 50%.	Volume reduced 50%.
9	Linkage	None	Limited	Unlimited
10	Production cost	Low	High	Between previous two